

SUPPLEMENTAL AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

CLAIMS

Claim 1 (Currently Amended): A method of determining a rate of *in vivo* metabolism of one or more sugars or fatty acids in an individual, said method comprising:

(a) administering a known quantity of ^2H -labeled sugars or ^2H -labeled fatty acids to an individual, ~~said quantity comprising an absolute amount of ^2H~~ for a sufficient time for said ~~one or more~~ ^2H -labeled sugars or ^2H -labeled fatty acids to be metabolized in said individual to produce ^2H -labeled water;

(b) obtaining one or more bodily tissues or fluids at one or more times from said individual, wherein said one or more bodily tissues or fluids comprise a portion of said ^2H -labeled water;

(c) ~~detecting~~ determining a quantity of ^2H present in said portion of said ^2H -labeled water to quantify an ~~absolute~~ amount of ^2H released into body water; and

(d) calculating a ratio of said ~~absolute~~ amount of ^2H released into body water to said ~~absolute~~ known amount of ^2H administered to determine said rate of *in vivo* metabolism of said one or more of sugars or fatty acids in said individual.

Claim 2 (Currently Amended): The method according to claim 1, wherein said known quantity of ^2H -labeled sugars comprise ^2H -labeled glucose.

Claim 3 (Previously Presented): The method according to claim 2, wherein said ^2H -labeled glucose is selected from the group consisting of $[6,6\text{-}^2\text{H}_2]\text{glucose}$, $[1\text{-}^2\text{H}_1]\text{glucose}$, and $[1,2,3,4,5,6\text{-}^2\text{H}_7]\text{glucose}$.

Claim 4 (Currently Amended): The method according to claim 1, wherein said known quantity of ^2H -labeled sugars or ^2H -labeled fatty acids ~~are~~ is administered by a technique selected from the group consisting of oral, gavage, intraperitoneal, intravascular, and subcutaneous administration.

Claim 5 (Currently Amended): The method according to claim 4, wherein said known quantity of ^2H -labeled sugars or ^2H -labeled fatty acids ~~are~~ is administered orally.

Claim 6 (Original): The method according to claim 1, wherein said individual is a mammal.

Claim 7 (Currently Amended): The method according to claim 6, wherein said mammal is selected from the group consisting of human[[s]], rodent{[[s]]}, primate[[s]], ~~hamsters, guinea-pigs,~~ dog[[s]], and pig[[s]].

Claim 8 (Original): The method according to claim 7, wherein said mammal is a human.

Claim 9 (Previously Presented): The method according to claim 1, wherein said one or more bodily tissues or fluids are selected from the group consisting of blood, urine, saliva, and tears.

Claim 10 (Previously Presented): The method of claim 1, wherein said one or more bodily tissues or fluids are selected from the group consisting of liver, muscle, adipose, intestine, brain, and pancreas.

Claim 11 (Previously presented): The method of claim 1, comprising the additional step of partially purifying said portion of said ^2H -labeled water from said one or more bodily tissues or fluids.

Claim 12 (Previously presented): The method of claim 11, comprising the additional step of isolating said portion of said ^2H -labeled water from said one or more bodily tissues or fluids.

Claims 13 – 23 (Cancelled).

Claim 24 (Currently Amended): The method according to claim 1, comprising the additional step of calculating a proportion or storage rate of administered ^2H -labeled fatty acids ~~undergoing fatty acid oxidation by calculating the proportion of ^2H -labeled fatty acids not metabolized in said individual to produce ^2H -labeled water.~~

Claims 25 – 30 (Cancelled)

Claim 31 (Currently Amended): The method according to claim 1, wherein said quantity of ^2H present in said portion of said ^2H -labeled water is ~~detected by methods~~ determined by a method selected from the group consisting of gas chromatography/mass spectrometry, liquid chromatography-mass spectrometry, gas chromatography-pyrolysis-isotope ratio/mass spectrometry, gas chromatography-combustion-isotope ratio/mass spectrometry, cycloidal mass spectrometry, Fourier-transform-isotope ratio (IR)-spectroscopy, near IR laser spectroscopy, and isotope ratio mass spectrometry.

Claim 32 (Currently Amended): The method according to claim 1, wherein said ~~detecting~~ determining step is accomplished by ~~detecting~~ determining one part ^2H in 10^7 parts water.

Claim 33 (Canceled).

Claim 34 (Currently Amended): The method according to claim 1, wherein said ~~determining of said metabolism~~ rate of *in vivo* metabolism is used as a surrogate marker for FDA approval of drugs.

Claim 35 (Currently Amended): The method according to claim 1, wherein said ~~determining of said metabolism~~ rate of *in vivo* metabolism is used for clinical management of patients.

Claim 36 (Canceled).

Claim 37 (Currently Amended): The method according to claim 1, wherein said ~~determining of said metabolism~~ method further comprises identifying individuals at risk for insulin resistance and diabetes mellitus.

Claim 38 (Currently Amended): The method according to claim 1, wherein said ~~determining of said metabolism~~ method further comprises diagnosing high-fat diet-induced obesity.

Claim 39 (Currently Amended): The method according to claim 1, wherein said ~~determining of said metabolism~~ method further comprises identifying individuals at risk for high-fat diet-induced obesity.

Claim 40 (Currently Amended): The method according to claim 1, wherein said ~~determining of said metabolism~~ method further comprises ~~the~~ a step of monitoring the effects of interventions to prevent or reverse insulin resistance, diabetes mellitus, and high-fat diet-induced obesity.

Claim 41 (Currently Amended): The method according to claim 1, further comprising ~~the steps selected from the group consisting~~ a step of diagnosing ~~and or~~ treating wasting disorders.

Claim 42 (Currently Amended): The method according to claim 1, further comprising ~~the steps selected from the group consisting~~ a step of diagnosing ~~and or~~ treating hypoglycemia.

Claim 43 (Currently Amended): The method according to claim 1, further comprising ~~the steps selected from the group consisting~~ a step of diagnosing ~~and or~~ treating glycogen storage disease.

Claims 44-67 (Cancelled).

Claim 68 (New): The method according to claim 1, comprising the additional step of calculating a proportion or storage rate of administered ^2H -labeled sugars by calculating the proportion of ^2H -labeled sugars not metabolized in said individual to produce ^2H -labeled water.